

New records and geographic distribution of *Corythomantis greeningi* Boulenger, 1896 (Amphibia: Hylidae)

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ABSTRACT: We provide new records of *Corythomantis greeningi* from southeastern Brazil, extending its southernmost distribution. The new records of *C. greeningi* are from an area of the Cerrado biome, in the State of Minas Gerais.

Corythomantis greeningi Boulenger, 1896 is a medium to large-sized casque-headed frog widely distributed in the xeric and subhumid regions of northeastern Brazil (Frost 2011). Its geographic distribution is mainly associated with the Caatinga, a biome characterized by xeric shrub lands. This species lives or seeks refuge in bromeliads, tree holes and rock crevices, and reproduces in lentic water ponds during the rainy season (Jared *et al.* 1999). Although the distribution of *C. greeningi* is well known within the Caatinga, it is poorly known at higher latitudes, particularly in transition areas with the Cerrado biome.

Recently, Pombal *et al.* (2012) described a second species of *Corythomantis* from Bahia State, northeastern Brazil, and also reviewed the current distribution of *C. greeningi* based on collections and literature records. At this point, the southernmost record of *C. greeningi* is the middle Jequitinhonha River, in Cristália Municipality, Minas Gerais State, southeastern Brazil (Feio and Caramaschi 1995). Herein we report new records of *C. greeningi* for the Cerrado biome, based on specimens collected by us and deposited in the herpetological collection of the Museu de Zoologia João Moojen, Universidade Federal de Viçosa (MZUFV), Viçosa, Minas Gerais, Brazil. In order to improve the current geographic distribution map of *C. greeningi*, we also considered literature records and data available on CRIA's Species Link (2013), an information system that integrates data from Brazilian biological collections.

On 13 November 2011 at 10:00 h, a couple of *C. greeningi* (Figure 1) was found inside a bromeliad on the margin of a permanent stream (17°24'13" S, 45°03'36" W, 654 m elevation, datum SAD1969), in the rural zone of Buritizeiro Municipality, Minas Gerais State, Brazil (capture license provided by the Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renováveis [IBAMA] #30677-1/2011). Voucher specimens are deposited in the herpetological collection of MZUFV under the labels MZUFV11705 (male) and MZUFV 11706 (female). An additional record was considered here based on a specimen collected on 2 January 1993 at Montes Claros Municipality and housed in MZUFV collection, under the label MZUFV 895.

After reviewing literature on records of this species it

was possible to trace 38 localities with confirmed records, including the new records reported here (see Table 1, Figure 2). Most of the records of *C. greeningi* were from biomes characterized by open vegetation, such as the Caatinga (63.16% of records, n = 24) and Cerrado (21.05%, n = 8), but they were also found in adjacent regions toward the Atlantic Forest (15.79%, n = 6). The record of *C. greeningi* from Buritizeiro Municipality, northern Minas Gerais, represents its southernmost record, extending its geographic distribution around 230 km in a straight line southwestward from the closest locality previously reported; Municipality of Cristália (Figure 2). The occurrence of *C. greeningi* was reported in higher latitudes, in the States of Rio de Janeiro (*e.g.* Miranda-Ribeiro 1926) and Espírito Santo (*e.g.* Condit 1964). The record from Rio de Janeiro State was considered improbable by Sazima and Cardoso (1980), who suggested an allopatric distribution between *C. greeningi* and *Aparasphenodon bruno* Miranda-Ribeiro, 1920. Additionally, none register of *C. greeningi* from Espírito Santo State were encountered by Pombal *et*



FIGURE 1. Couple of *Corythomantis greeningi* (MZUFV 11705-11706) collected Buritizeiro Municipality, Minas Gerais State, Brazil.

TABLE 1. Literature records and new distribution points compiled for *Corythomantis greeningi* in Brazil.

MUNICIPALITY (LOCALITY)	STATE	LATITUDE	LONGITUDE	BIOME	REFERENCE
Água Branca	Alagoas	09°15'43" S	37°56'16" W	Caatinga	Pombal <i>et al.</i> (2012)
Piranhas (Dam Xingó)	Alagoas	09°37'24" S	37°45'24" W	Caatinga	Kasahara <i>et al.</i> (2003)
Carnaíba do Sertão	Bahia	09°35'45" S	40°25'09" W	Caatinga	Pombal <i>et al.</i> (2012)
Encruzilhada	Bahia	15°31'48" S	40°54'44" W	Atlantic Forest	Sazima and Cardoso (1980)
Feira de Santana (São José Mountain)	Bahia	12°06'00" S	39°01'48" W	Atlantic Forest	Juncá <i>et al.</i> (2007)
Jeremoabo	Bahia	10°04'06" S	38°20'49" W	Caatinga	Pombal <i>et al.</i> (2012)
Maracás	Bahia	13°26'07" S	40°25'56" W	Atlantic Forest	Pombal <i>et al.</i> (2012)
Miguel Calmon	Bahia	11°25'47" S	40°36'11" W	Caatinga	Pombal <i>et al.</i> (2012)
Morro do Chapéu (Lages)	Bahia	11°28'59" S	41°19'59" W	Caatinga	Juncá <i>et al.</i> (2007)
Paulo Afonso	Bahia	09°23'53" S	38°13'17" W	Caatinga	Pombal <i>et al.</i> (2012)
Crato	Ceará	07°14'03" S	39°24'33" W	Caatinga	Species Link
Crato	Ceará	07°12'55" S	39°24'37" W	Caatinga	Pombal <i>et al.</i> (2012)
Viçosa do Ceará	Ceará	03°33'43" S	41°05'31" W	Caatinga	Species Link
Viçosa do Ceará	Ceará	03°34'00" S	41°05'29" W	Caatinga	Pombal <i>et al.</i> (2012)
São Domingos	Goiás	13°23'59" S	46°19'18" W	Cerrado	Pombal <i>et al.</i> (2012)
Chapadinha	Maranhão	03°44'19" S	43°21'37" W	Cerrado	Sazima and Cardoso (1980)
Urbano Santos	Maranhão	03°12'23" S	43°23'16" W	Cerrado	Pombal <i>et al.</i> (2012)
Buritizeiro	Minas Gerais	17°24'13" S	45°03'36" W	Cerrado	This work
Cristália	Minas Gerais	16°42'57" S	42°51'25" W	Cerrado	Feio and Caramaschi (1995)
Montes Claros	Minas Gerais	16°43'41" S	43°51'28" W	Cerrado	This work
Grão Mogol	Minas Gerais	16°33'33"S	42°53'22"W	Cerrado	Species Link
Campina Grande	Paraíba	07°13'19" S	35°52'23" W	Caatinga	Pombal <i>et al.</i> (2012)
Piancó	Paraíba	07°11'34" S	37°55'43" W	Caatinga	Pombal <i>et al.</i> (2012)
São João do Cariri	Paraíba	07°21'59" S	36°30'59" W	Caatinga	Vieira <i>et al.</i> (2007)
Soledade	Paraíba	07°03'29" S	36°22'00" W	Caatinga	Pombal <i>et al.</i> (2012)
Caruaru	Pernambuco	08°17'04" S	35°58'11" W	Caatinga	Pombal <i>et al.</i> (2012)
Exu	Pernambuco	07°30'13" S	39°43'25" W	Caatinga	Pombal <i>et al.</i> (2012)
Garanhuns (Jabotão River)	Pernambuco	08°52'56" S	36°29'47" W	Atlantic Forest	Pombal <i>et al.</i> (2012)
Pesqueira	Pernambuco	08°21'28" S	36°41'52" W	Caatinga	Carvalho (1941)
Salgadinho	Pernambuco	07°55'36" S	35°39'01" W	Caatinga	Carvalho (1941)
Santa Cruz da Baixa Verde	Pernambuco	07°48'48" S	38°08'51" W	Caatinga	Silva <i>et al.</i> (2010)
Floriano	Piauí	06°46'18" S	43°01'26" W	Cerrado	Pombal <i>et al.</i> (2012)
Piracuruca	Piauí	03°55'41" S	41°42'33" W	Caatinga	Sazima and Cardoso (1980)
Piripiri	Piauí	04°16'26" S	41 46'36" W	Caatinga	Species Link
(Parque Nacional Sete Cidades)	Piauí	04°16'23" S	41°46'36" W	Caatinga	Pombal <i>et al.</i> (2012)
Angicos (Fazenda São Miguel)	Rio Grande do Norte	05°39'42" S	36°36'18" W	Caatinga	Jared <i>et al.</i> (2005)
São Paulo do Potengi	Rio Grande do Norte	05°53'57" S	35°45'51" W	Caatinga	Pombal <i>et al.</i> (2012)
(Estação Ecológica Serra Geral)	Tocantins	10°40'48" S	46°09'02" W	Cerrado	Valdujo <i>et al.</i> (2011)

al. (2012) after the examination of 89 specimens housed in several scientific collections.

Previous reports of *C. greeningi* present three inconsistencies: [1] Silva *et al.* (2010) provide the geographic coordinate [07°85'8.9" S, 38°17'7.09" W], referring to the Sítio Olho d'Água, in the Municipality of Santa Cruz da Baixa Verde, Pernambuco State. However, the geographic coordinate system only accepts values below 60 in the data field of minutes or seconds. According to IBGE (2011), Santa Cruz da Baixa Verde Municipality is located at 07°49'14" S, 38°09'10" W; [2] Pombal *et al.* (2012) included a record for Boa Vista Municipality, in Paraíba State and cited Vieira *et al.* (2007). However, these last authors did not report the presence of *C. greeningi* in Boa Vista despite their paper dealt with studies on this site. Actually, Vieira *et al.* (2007) reported the occurrence of *C. greeningi* in the neighboring Municipality of São João do Cariri; and [3] according to Pombal *et al.* (2012: 8) "*C. greeningi* is known from northeastern, central, and southeastern Brazil ... and transition area to the Atlantic

Rain Forest or Cerrado biomes, including a locality in the State of Goiás, in the ecotone between Cerrado and Caatinga biomes (see Vaz-Silva *et al.*, in press)". However, the paper of Vaz-Silva *et al.* (2012), cited by Pombal *et al.* (2012), did not report the occurrence of *C. greeningi* in Goiás State. Nevertheless, Pombal *et al.* (2012: 13) mentioned an examined specimen of *C. greeningi* from São Domingos Municipality, Goiás State. Therefore, the authorship of the first record of this species in Goiás State should be attributed to Pombal *et al.* (2012) instead of Vaz-Silva *et al.* (2012).

Besides *C. greeningi*, other species typically associated with the Caatinga biome have been reported for Cerrado regions, such as *Odontophrynus carvalhoi* Savage and Cei, 1965 (Haddad *et al.* 1988; Feio and Caramaschi 1995), *Physalaemus cicada* Bokermann, 1966, *Leptodactylus troglodytes* A. Lutz, 1926, and *Dendropsophus soaresi* Caramaschi and Jim, 1983 (Feio and Caramaschi 1995; Silveira 2006). Many of these species exhibit the limits of their geographic distributions in the boundaries between



the biomes Cerrado and Caatinga (Haddad *et al.* 1988; Feio and Caramaschi 1995; Silveira 2006). Historical climatic modeling of the Caatinga range predicted the expansion of some components of the nucleus of the Caatinga into the Cerrado regions of central and southeastern Brazil since the last glacial maximum (ca. 21,000 years ago) (Werneck and Coli 2006; Werneck 2011; Werneck *et al.* 2011). Therefore, the occurrence of these species, including *C. greeningi*, within the Cerrado biome may be associated to a relictual distribution of Seasonally Dry Tropical Forests in central Brazil.

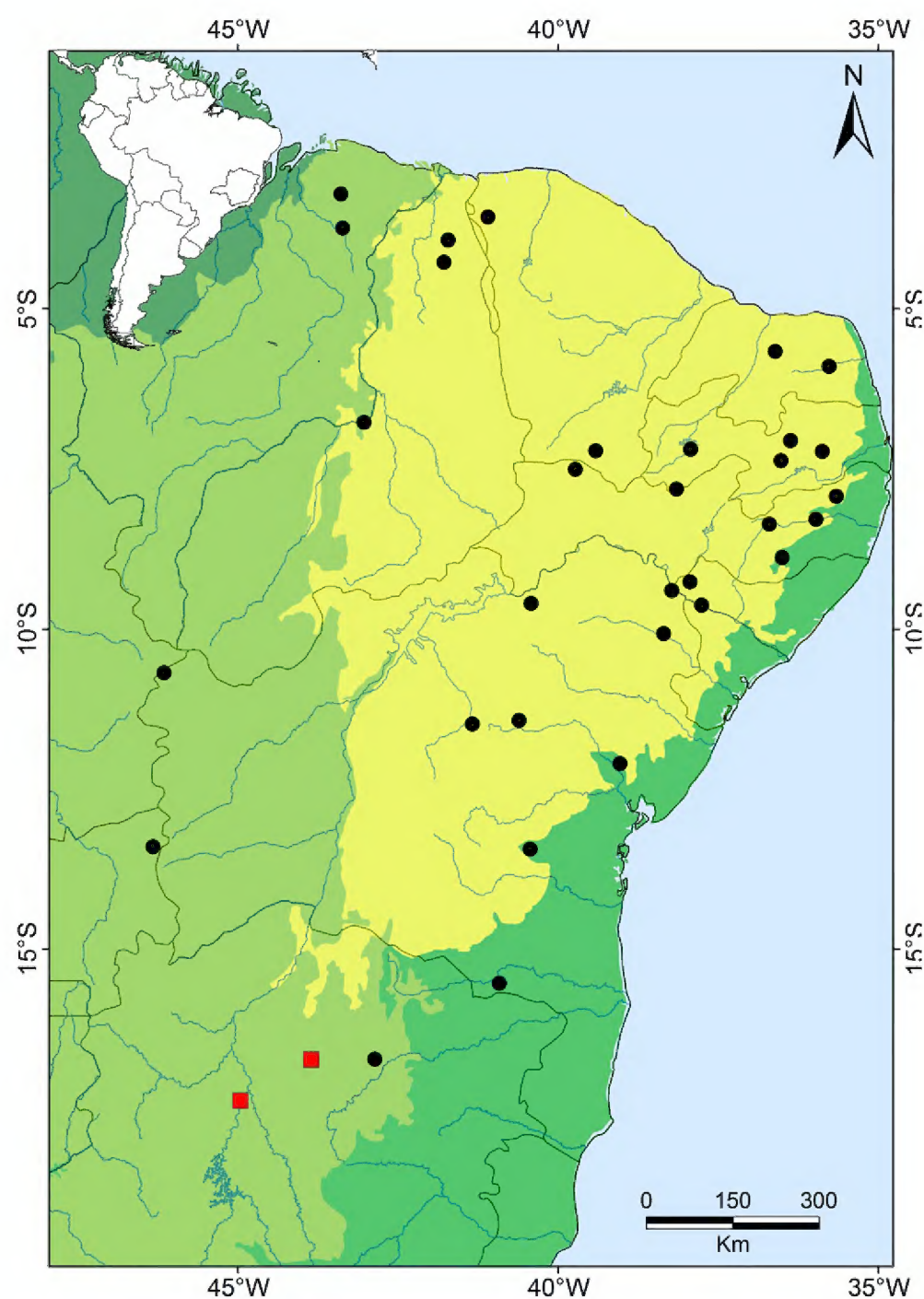


FIGURE 2. Geographic distribution of *Corythomantis greeningi* in Brazil, based on literature data (black circles), collection records from Species Link database (black squares), and new records (red square).

ACKNOWLEDGMENTS: We thank Juliana Zina and the anonymous referees for their valuable comments on the manuscript. André Luiz Gomes de Carvalho and Jessica Allen critically revised the English version of the draft. The Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) for fellowships granted to LBG and MRM. Project Idea Wild for financial support.

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RECEIVED: June 2012

ACCEPTED: October 2012

PUBLISHED ONLINE: March 2013

EDITORIAL RESPONSIBILITY: Juliana Zina